

Claims

We claim:

1. A product recovery system for recovering product from a pipeline having a supply end and a destination end and having a primary product flow from the supply end to the destination end, the recovery system comprising:

a pig launching station connected to and in communication with one end of the pipeline, said pig launching station including a pig parking chamber outside the primary product flow; and

a pig catching station connected to and in communication with the other end of the pipeline, said pig catching station including a clean-in-place chamber for housing a pipeline pig while the pig is cleaned without removing the pig from the product recovery system.

2. The product recovery system of claim 1 wherein the pig launching station is connected to the pipeline nearer to the supply end than to the destination end, and wherein the pig catching station is connected to the pipeline nearer to the destination end than to the supply end.

3. The product recovery system of claim 2 wherein the pig catching station includes a loading valve sized and positioned to prevent a pig from proceeding down stream when the valve is in the open position, and for pushing the pig out of the clean-in-place chamber when in the closed position.
4. The product recovery system of claim 3 wherein the pig catching station includes a loading receptor for guiding a pig from ^{the clean-in-place} ~~a clean-in-place~~ chamber with a larger interior diameter to an area with a smaller interior diameter when the pig is pushed by the loading valve.
5. The product recovery system of claim 1 further comprising a pipeline pig having at least one rib thereon said rib having an exterior diameter, and wherein the pig launching station includes a pig parking chamber, with an interior diameter greater than or equal to, the exterior diameter of the pig.
6. The product recovery system of claim 1 wherein the pipeline has an interior diameter, and the pig launching station includes an easement chamber with at least a portion thereof having an interior diameter larger than the interior diameter of the pipeline.

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7. The product recovery system of claim 6 further comprising a pipeline pig having at least one rib, said ^{pig}~~rib~~ having an exterior diameter, and wherein the exterior diameter of the pig is larger than the interior diameter of the pipeline, and smaller than the interior diameter of the easement chamber.
8. The product recovery system of claim 1 wherein the pig parking chamber includes a stop for stopping a pig in said pig parking chamber.

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9. A product recovery system comprising: a pig launching station connected a pipeline with a path of primary product flow and wherein the pig launching station includes a pig parking chamber for holding a pig outside the path of primary product flow.
 10. The product recovery system of claim 9 further comprising means for moving a pig from the pig parking chamber into the path of primary product flow.
 11. The product recovery system of claim 10 wherein the means for moving a pig from the pig parking chamber into the path of primary product flow is the introduction of compressed air.
 12. The product recovery system of claim 9 further comprising a pig catching station connected to, an in communication with a pipeline, and wherein said pig catching station includes a clean-in-place chamber sized and adapted for holding a pig within said chamber, but with sufficient room in the chamber for a pig to move therein.

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13. The product recovery system of claim 12 wherein in the clean-in-place chamber has an interior diameter, and the pipeline has an interior diameter, and wherein the product recovery system further comprises: a receiver connected between the clean-in-place chamber and a pipe line, wherein said receiver includes an area of larger interior diameter, an area of smaller interior diameter and an area of tapered interior diameter there between, said area of larger interior diameter having an interior diameter generally equal to the interior diameter of the clean-in-place chamber, and the said area of smaller diameter having an interior diameter generally equal to the interior diameter of the pipeline.

14. The product recovery system of claim 12 further comprising means in the pig catching station for moving a pig from the clean-in-place chamber to the pipeline.

15. The product recovery system of claim 14 wherein the means for moving a pig comprises a standard valve having a valve plug wherein said valve plug is positioned to push a pig from the clean-in-place chamber into a receiver.

16. A method for recovering product and cleaning a pipeline comprising the steps of:

moving a pipeline pig down a pipeline to push product to a point of destination;

catching said pig in a clean-in-place chamber having sufficient room therein for fluid to pass around the pig while it is in the clean-in-place chamber;

pushing said pig out of the clean-in-place chamber and into a ready to return position with a valve; and

moving said pig back up the pipeline to a pig parking chamber and thereby pushing cleaning solution to a discharge line.

17. The method of claim 16 wherein the step of pushing the pig out of the clean-in-place chamber comprises: cycling a standard valve so a valve plug will push the pig.

18. The method of claim 16 further comprising the step of: holding the pig out of a primary path of product flow when the pig is in the pig parking chamber.